MDR-NC10

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model
Tourist Model

SPECIFICATIONS

General

Type	Closed, dynamic
Driver units	13.5 mm dia: dome type
Impedance	27 ohms at 1 kHz (when the power is on) 16 ohms at 1 kHz (when the power is off)
Sensitivity	106 dB/mW (when the power is on) 104 dB/mW (when the power is off)
Frequency response	10 – 22,000 Hz
Frequency range of active noise attenuation	40 – 1,500 Hz more than 10 dB at 300 Hz
Power source	DC 1.5 V, 1 × R03 (size AAA) battery
Mass	Approx. 46g (oz) including battery box, cord, and battery

Supplied accessories

Connecting cord 0.6 m (micro plug ⟷ L-shaped stereo mini plug) (1)
Carrying case (1)
Plug adaptor for in-flight use (single/dual) (1)
Operating Instructions (1)

Design and specifications are subject to change without notice.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

NOISE CANCELING STEREO HEADPHONES

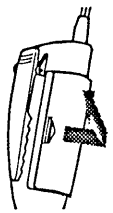
SONY®

Features

- Noise canceling headphones reduce ambient noise, and provide a quieter environment to enhance audio entertainment. Ambient sound is synthesized with an anti-sound signal produced by the noise canceling circuit, and reduced. (Over 10 dB is reduced at 300 Hz.)
- Newly developed Sony acoustic circuit provides clear sound and efficient noise attenuation.
- Neodymium magnets are used to deliver powerful sound.
- Monitor switch is available to deactivate noise canceling circuit and hear outer ambient sound.
- Operates as passive heaphone when noise canceling circuit is not activated.
- Plug adaptor is supplied to connect directly to stereo or dual jack of inflight music services.

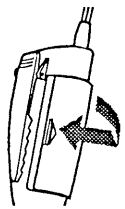
Installing a battery

1 Open the lid on the rear side of the battery box.



2 Insert one R03 (size AAA) battery by matching the + and – on the battery to the + and – in the battery box.

3 Close the lid.



Battery life

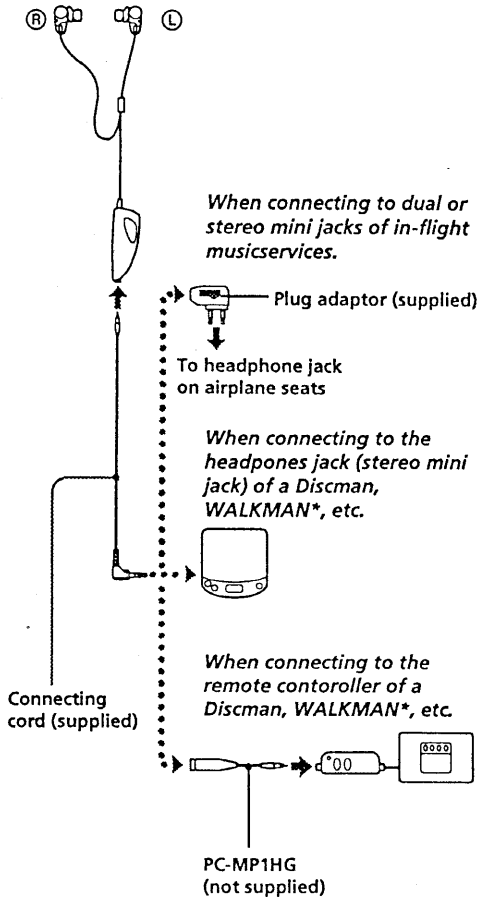
Battery	Approx. hours
Sony alkaline battery LR03/ AM-4 (N)	60 hours
Sony battery R03/UM-4 (NU)	30 hours

When to replace the battery

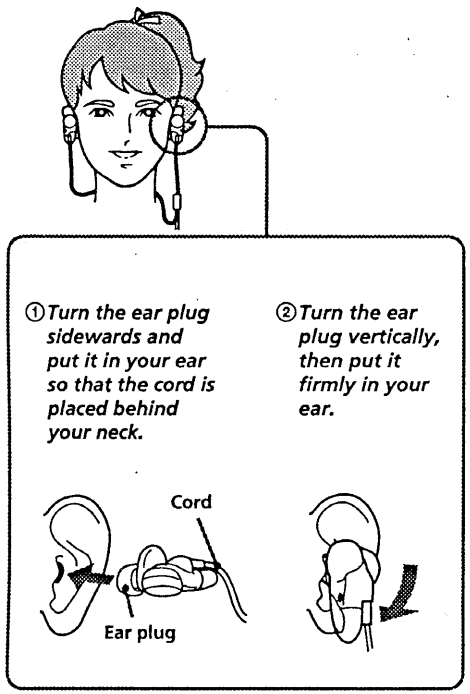
Replace the battery with a new one when the POWER indicator dims.

Listening to music

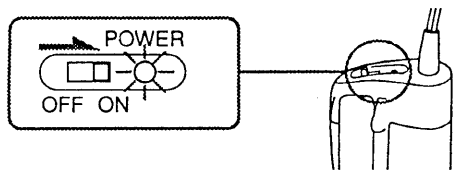
1 Connect the headphones to the AV equipment.


Ⓡ
Ⓛ
When connecting to dual or stereo mini jacks of in-flight musicservices.
Plug adaptor (supplied)
To headphone jack on airplane seats
When connecting to the headpones jack (stereo mini jack) of a Discman, WALKMAN*, etc.
Connecting cord (supplied)
When connecting to the remote contoroller of a Discman, WALKMAN*, etc.
PC-MP1HG (not supplied)

2 Wear the ear pieces marked Ⓡ in your right ear and the one marked Ⓛ in your left ear. Put the ear plugs in your ears steadily so that the ear pieces do not come off from your ears.


①Turn the ear plug sidewards and put it in your ear so that the cord is placed behind your neck.
②Turn the ear plug vertically, then put it firmly in your ear.
Cord
Ear plug

3 Turn on the power of the headphones.
The power indicator lights in red. Power switch is located on the battery box. When power is turned on, ambient noise is reduced, and you can listen to music more clearly at a lower volume.



4 Turn on the power of the AV equipment.

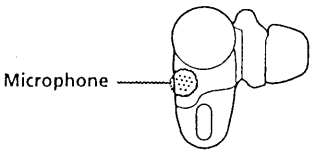
* WALKMAN is a registered trademark of Sony Corporation.

After listening to music

Turn off the power of the headphones.

Notes

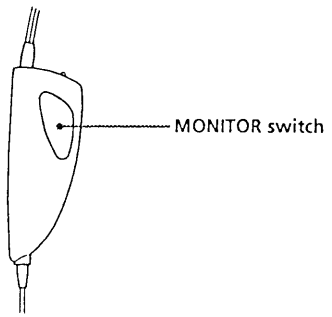
- The noise canceling function is only effective for noise in the low frequency band. Although noise is reduced, it is not canceled completely.
- Do not cover the microphone of the headphones with your hands. The noise canceling function may not work properly.



- The noise canceling function may not work properly unless the headphones are put on firmly.
- You can use the headphones even without turning on the power. In this case, the noise canceling function is not active, and the headphones operate as passive headphones.

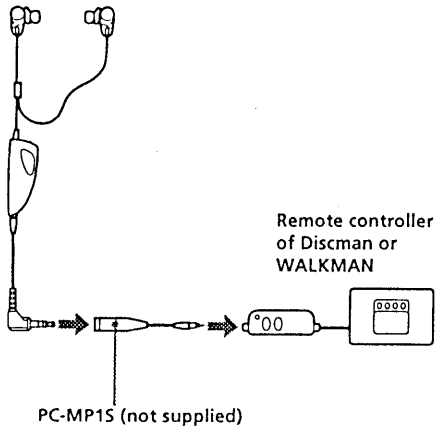
To hear outside sounds

If you keep on pushing the MONITOR switch on the battery box while power is turned on, the noise canceling function is inactive, and you can listen to outside sounds through the microphones.

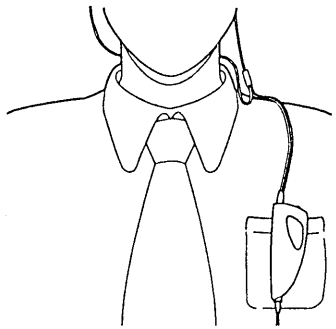


When connecting to the remote controller of Discman or WALKMAN

Use the plug adaptor PC-MP 1S (not supplied).



Using the clip



When carrying the headphones

Use the supplied carrying case. You can put the headphones and the battery box separately in the case.

Precautions

- Clean the headphones with a soft dry cloth.
- Do not leave the plug dirty otherwise the sound may be distorted.
- Be sure to bring the headphones to the Sony dealer when requiring a change of ear plugs or repair work.
- The EC mark on the unit is valid only for products marketed in the European Union.
- Do not leave the stereo headphones in a location subject to direct sunlight, heat or moisture.

Notes on headphones

Preventing hearing damage

Avoid using headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce the volume or discontinue use.

Caring for others

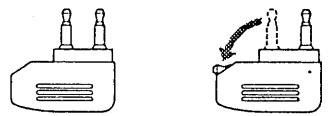
Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate to the people around you.

Do not listen with the headphones while driving and cycling

As your headphones shut out outside sounds, it may cause the traffic accident. Also, avoid using them where hearing must not be impaired, for example, a railroad crossing, a site of construction, etc.

Notes on using on the airplane

- The supplied plug adaptor can be connected to dual and stereo mini jacks.



dual jacks stereo mini jacks

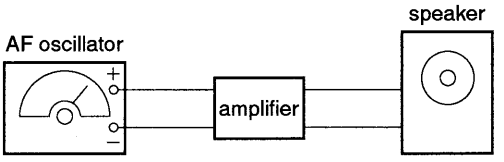
- Do not use the headphones when the airplane takes off or lands.

If you have any questions or problems concerning the system that are not covered in this manual, please consult the nearest Sony dealer.

SECTION 2
ELECTRICAL ADJUSTMENT

NOISE CANCELING AMOUNT ADJUSTMENT

Preparation:

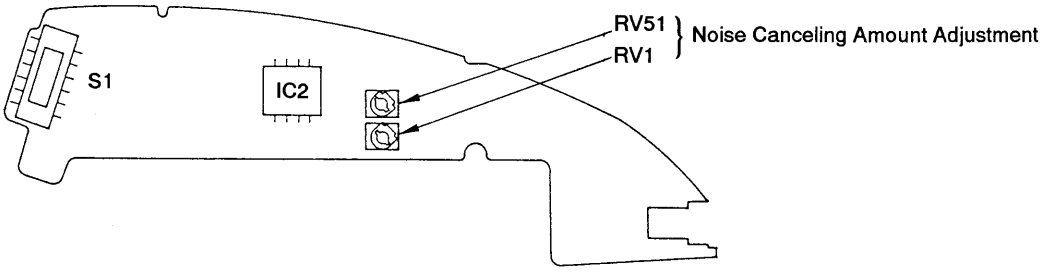


Procedure:

1. Generate a sine wave of specific frequency (250 Hz) from a AF oscillator, and output it from a speaker placed at the forward position.
2. Mount this set on the head, and turn on the POWER switch.
3. With this set mounted, rotate the RV1 (Lch) and RV51 (Rch) so that the volume from the speaker becomes lowest aurally.

Adjustment Location:

【NC BOARD】 (SIDE A)

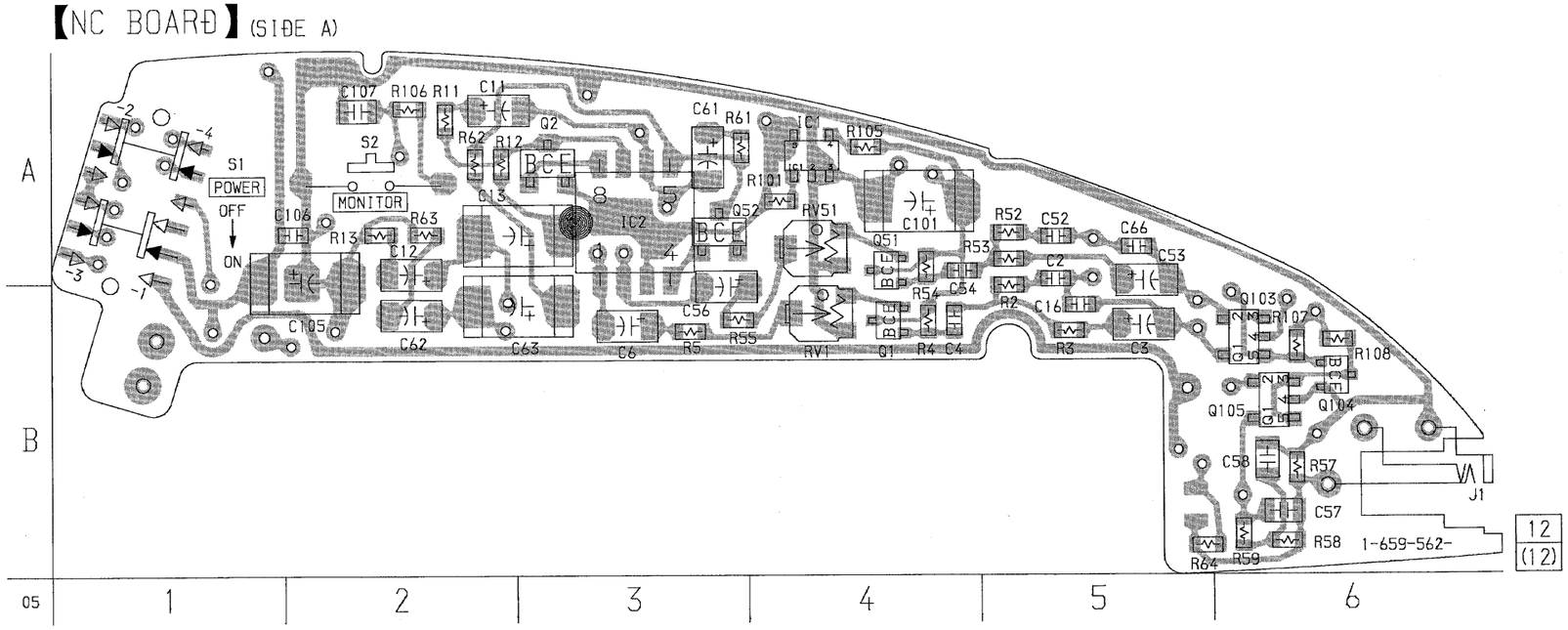


SECTION 3
DIAGRAMS

3-1. PRINTED WIRING BOARD

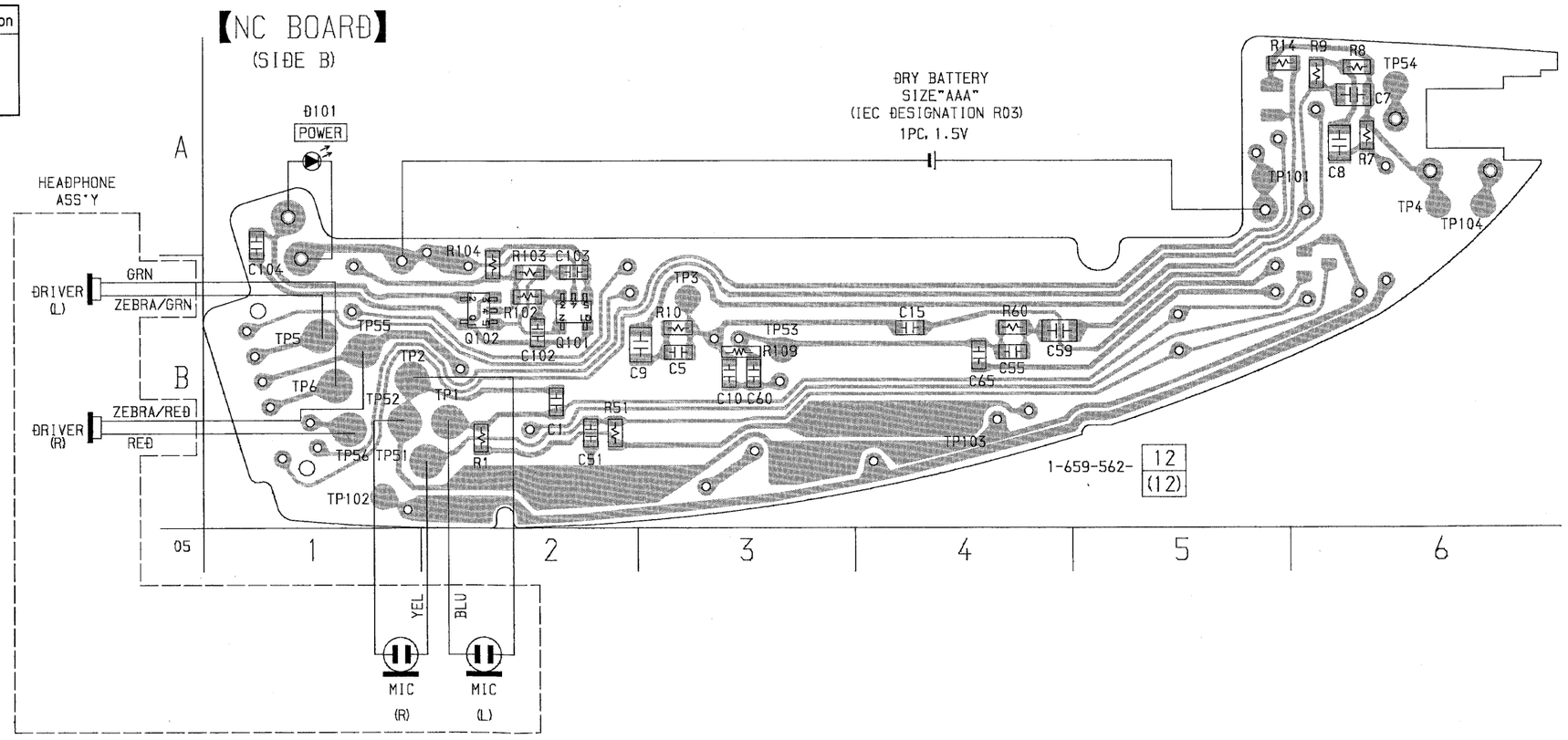
- **Semiconductor Location (SIDE A)**

Ref. No.	Location
IC1	A-4
IC2	A-3
Q1	B-4
Q2	A-3
Q51	A-4
Q52	A-3
Q103	B-6
Q104	B-6
Q105	B-6



- **Semiconductor Location (SIDE B)**

Ref. No.	Location
D101	A-1
Q101	B-2
Q102	B-2



Note on Printed Wiring Board:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ▒▒▒ : Pattern from the side which enables seeing.

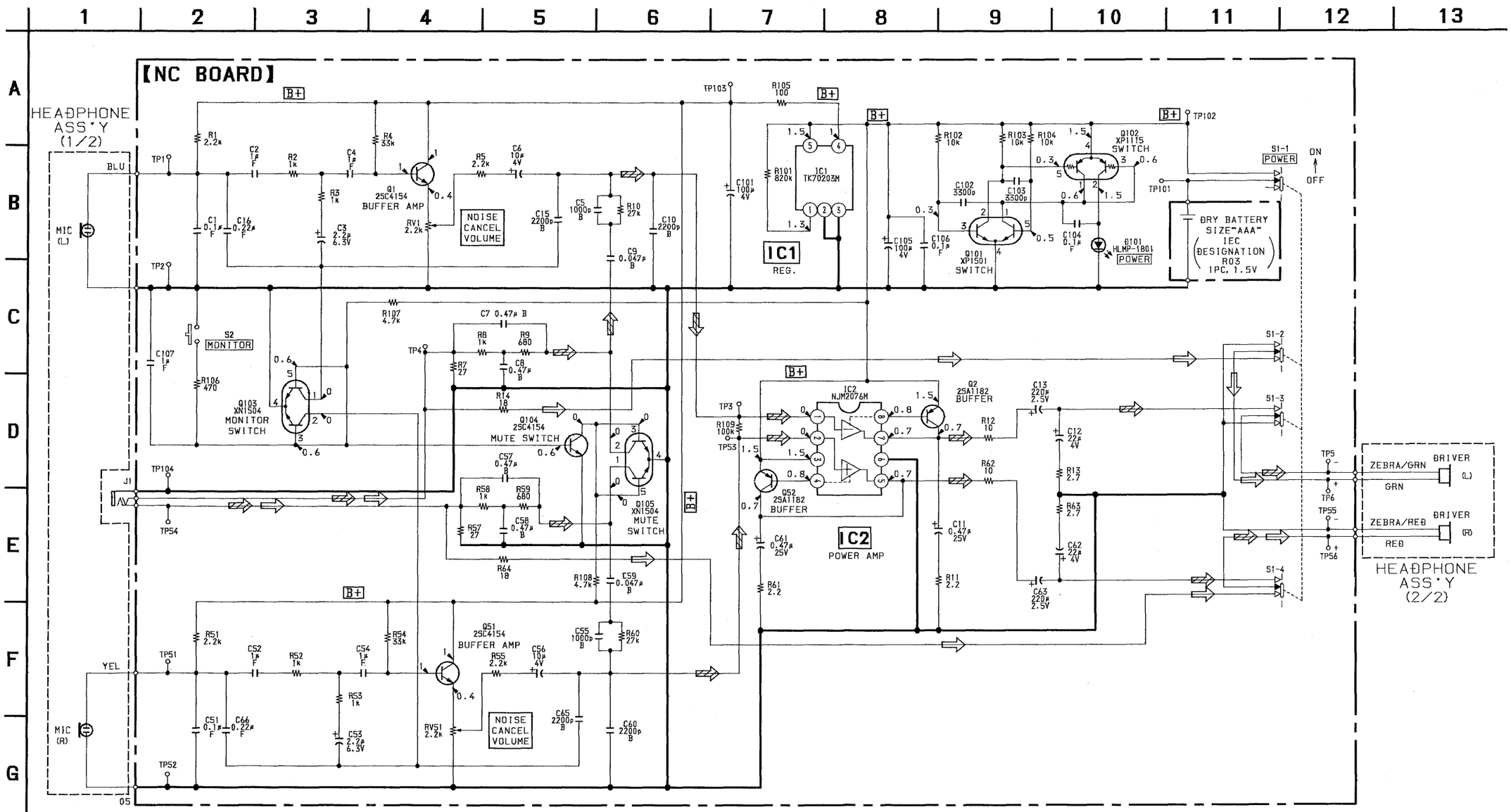
(The other layers' patterns are not indicated.)

Caution:

Side A: Parts on the pattern face side seen from the pattern face are indicated.

Side B: Parts on the parts face side seen from the parts face are indicated.

3-2. SCHEMATIC DIAGRAM



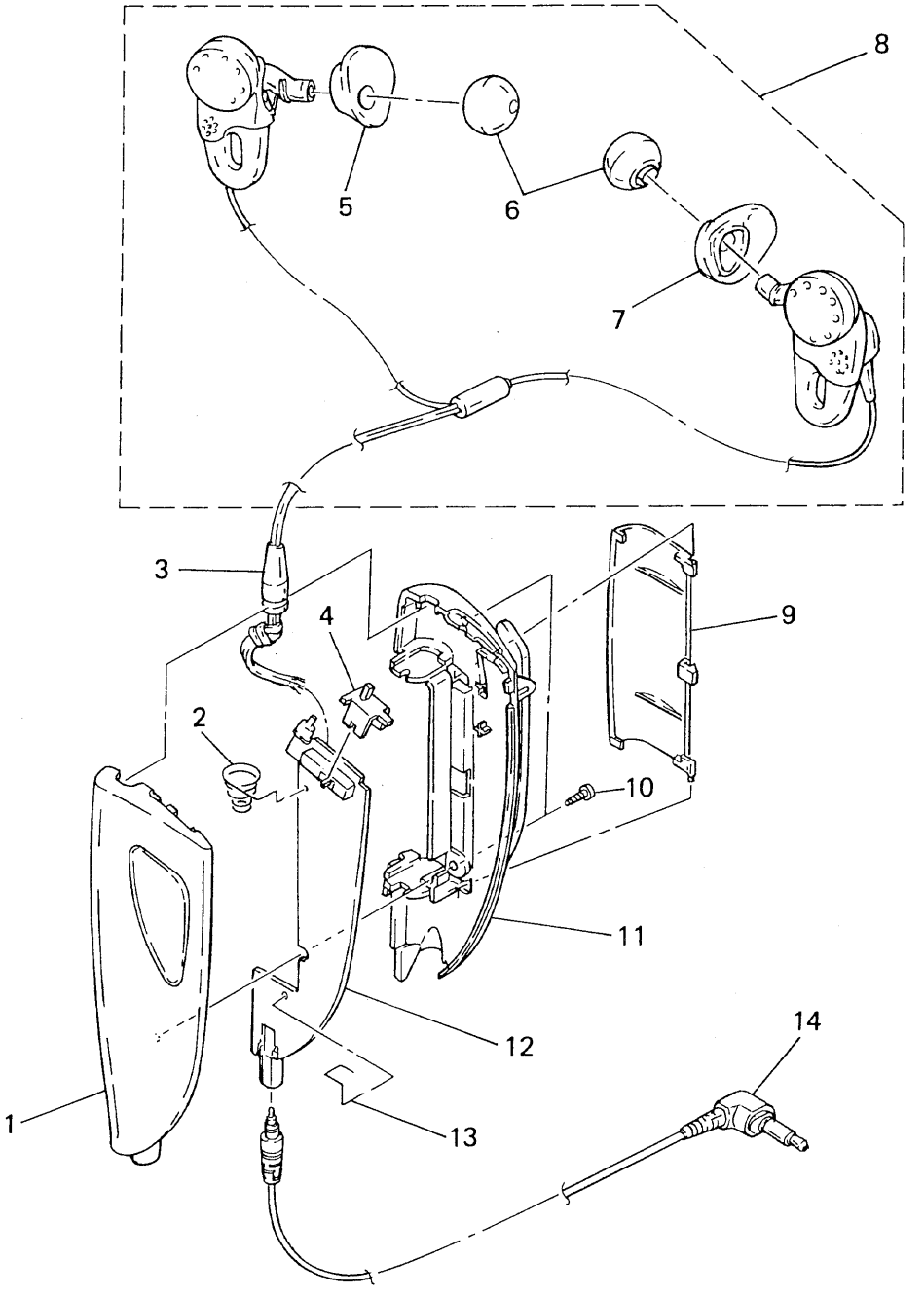
NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ▭ :panel designation.
- B+ :B+ Line.
- ▭ :adjustment for repair.
- Voltages are dc with respect to ground under no-signal conditions.
  no mark: POWER ON
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Power voltage is dc 1.5V and fed with regulated dc power supply from the battery terminal.
- Signal path.
  ⇨ :AUDIO signal (POWER OFF)
  ⇨ :AUDIO signal (POWER ON)

SECTION 4
EXPLODED VIEW

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.



Ref. No.	Part No.	Description	Remark
1	X-4946-969-2	CASE (UPPER) ASSY, BATTERY	
2	4-979-728-01	SPRING, BATTERY COIL	
3	2-388-710-01	BUSHING (L)	
4	4-979-725-01	KNOB, SWITCH	
5	4-979-745-01	CHIP (R), EAR	
6	4-980-340-01	PIECE, EAR	
7	4-979-744-01	CHIP (L), EAR	
8	A-4540-373-A	HEADPHONE ASSY	
9	4-979-724-02	LID, BATTERY CASE	
10	3-719-408-01	SCREW (B2), TAPPING, P3	
11	X-4946-970-2	CASE (LOWER) ASSY, BATTERY	
* 12	A-4542-354-A	NC BOARD, COMPLETE	
13	4-979-727-01	TERMINAL (+), BATTERY	
14	1-776-271-11	CORD, CONNECTION (MICRO PLUG-MINI PLUG)	

NC

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA ..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-4542-354-A	NC BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C1	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2	1-109-996-11	CERAMIC CHIP	1uF		6.3V
C3	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C4	1-109-996-11	CERAMIC CHIP	1uF		6.3V
C5	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C6	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C7	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C8	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C9	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C10	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C11	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C12	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C13	1-109-930-11	TANTAL. CHIP	220uF	20%	2.5V
C15	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C16	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C51	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C52	1-109-996-11	CERAMIC CHIP	1uF		6.3V
C53	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C54	1-109-996-11	CERAMIC CHIP	1uF		6.3V
C55	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C56	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C57	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C58	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C59	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C60	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C61	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C62	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C63	1-109-930-11	TANTAL. CHIP	220uF	20%	2.5V
C65	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C66	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C101	1-104-848-11	TANTAL. CHIP	100uF	20%	4V
C102	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C103	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C104	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C105	1-104-848-11	TANTAL. CHIP	100uF	20%	4V
C106	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C107	1-164-346-11	CERAMIC CHIP	1uF		16V
		< DIODE >			
D101	8-719-023-84	LED HLMP-1801 (POWER)			
		< IC >			
IC1	8-759-348-89	IC TK70203MTL			
IC2	8-759-289-74	IC NJM2076M(TE2)			
		< JACK >			
J1	1-580-805-12	SOCKET, CONNECTOR			
		< TRANSISTOR >			
Q1	8-729-602-21	TRANSISTOR	2SC4154-F		
Q2	8-729-030-31	TRANSISTOR	2SA1182-O(TE85L)		
Q51	8-729-602-21	TRANSISTOR	2SC4154-F		
Q52	8-729-030-31	TRANSISTOR	2SA1182-O(TE85L)		
Q101	8-729-429-44	TRANSISTOR	XP1501		
Q102	8-729-425-89	TRANSISTOR	XP1115		
Q103	8-729-020-92	TRANSISTOR	XN1504-TX		
Q104	8-729-602-21	TRANSISTOR	2SC4154-F		
Q105	8-729-020-92	TRANSISTOR	XN1504-TX		
		< RESISTOR >			
R1	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2	1-216-821-11	METAL CHIP	1K	5%	1/16W
R3	1-216-821-11	METAL CHIP	1K	5%	1/16W
R4	1-216-839-11	METAL CHIP	33K	5%	1/16W
R5	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R7	1-216-802-11	METAL GLAZE	27	5%	1/16W
R8	1-216-821-11	METAL CHIP	1K	5%	1/16W
R9	1-216-819-11	METAL CHIP	680	5%	1/16W

NC

Ref. No.	Part No.	Description			Remark
R10	1-216-838-11	METAL CHIP	27K	5%	1/16W
R11	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R12	1-216-797-11	METAL CHIP	10	5%	1/16W
R13	1-216-790-11	METAL GLAZE	2.7	5%	1/16W
R14	1-216-800-11	METAL GLAZE	18	5%	1/16W
R51	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R52	1-216-821-11	METAL CHIP	1K	5%	1/16W
R53	1-216-821-11	METAL CHIP	1K	5%	1/16W
R54	1-216-839-11	METAL CHIP	33K	5%	1/16W
R55	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R57	1-216-802-11	METAL GLAZE	27	5%	1/16W
R58	1-216-821-11	METAL CHIP	1K	5%	1/16W
R59	1-216-819-11	METAL CHIP	680	5%	1/16W
R60	1-216-838-11	METAL CHIP	27K	5%	1/16W
R61	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R62	1-216-797-11	METAL CHIP	10	5%	1/16W
R63	1-216-790-11	METAL GLAZE	2.7	5%	1/16W
R64	1-216-800-11	METAL GLAZE	18	5%	1/16W
R101	1-216-856-11	METAL CHIP	820K	5%	1/16W
R102	1-216-833-11	METAL CHIP	10K	5%	1/16W
R103	1-216-833-11	METAL CHIP	10K	5%	1/16W
R104	1-216-833-11	METAL CHIP	10K	5%	1/16W
R105	1-216-809-11	METAL CHIP	100	5%	1/16W
R106	1-216-817-11	METAL CHIP	470	5%	1/16W
R107	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R108	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R109	1-216-097-00	METAL CHIP	100K	5%	1/10W

< VARIABLE RESISTOR >

RV1	1-238-854-11	RES, ADJ, CERMET 2.2K
RV51	1-238-854-11	RES, ADJ, CERMET 2.2K

< SWITCH >

S1	1-570-385-21	SWITCH, SLIDE (POWER)
S2	1-571-938-11	SWITCH, TACTIL (MONITOR)

****

MISCELLANEOUS

****

8	A-4540-373-A	HEADPHONE ASSY
14	1-776-271-11	CORD, CONNECTION (MICRO PLUG-MINI PLUG)

****

Ref. No.	Part No.	Description	Remark

ACCESSORIES & PACKING MATERIALS

****

	1-473-686-11	ADAPTOR, PLUG (DUAL)
	1-776-271-11	CORD, CONNECTION (MICRO PLUG-MINI PLUG)
	3-810-589-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH)
	3-810-589-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (Canadian, AEP, UK)
	3-810-589-31	MANUAL, INSTRUCTION (ITALIAN, PORTUGUESE) (AEP, UK)
	4-980-341-01	PORCH, CARRYING

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